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Docket: T2211-908586

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

John Frank KRALIC

Serial No.: 10/614,740

Filed: July 8, 2003

For: Utility Pole Cross-arm and Associated Pole-top
Hardware

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: Examiner:
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: Group Art Unit:
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McLean, Virginia
December 1, 2003

**SUBMISSION OF CERTIFIED COPY OF
PRIORITY APPLICATION
IN SUPPORT OF CLAIM FOR PRIORITY**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In the matter of the above-identified application, a claim for priority has previously been made under the provisions of 35 U.S.C. 119 for the benefit of the filing date of the corresponding Australian Application No. 2002950037 filed 8 July 2002, which is referred to in the Declaration of the present case.

A certified copy of said Australian application is filed herewith in support of said claim.

Respectfully submitted,

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**Patent Office
Canberra**

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002950037 for a patent by BHP STEEL LIMITED as filed on 08 July 2002.

WITNESS my hand this
Twenty-fourth day of July 2003

A handwritten signature in cursive script that reads "J. Billingsley".

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES



BHP STEEL LIMITED

AUSTRALIA
Patents Act 1990

PROVISIONAL SPECIFICATION
for the invention entitled:

“Utility pole cross-arm and associated pole-top hardware”

The invention is described in the following statement:

UTILITY POLE CROSS-ARM AND ASSOCIATED POLE-TOP HARDWARE

Field of the Invention

5

This invention relates to cross-arms and associated pole-top hardware for use in relation to utility poles for the support of aerial conductors in electricity distribution and transmission systems.

- 10 The invention is particularly directed towards such hardware for use in low to medium voltage systems, that is to say, systems operating within the range of from consumer voltages (nominally 240/414 volts in Australia) to say 33 kilovolts.

Background Art

15

- Traditionally, utility poles and cross-arms used in such systems have been of timber. In more recent times tubular steel poles have started to replace wooden poles, because of the availability and relative costs of the two types of pole. The same cannot be said of cross-arms, which are still primarily of timber. This arises
- 20 because the relatively small line insulators used in systems of low to medium voltage produce an air gap between the aerial conductor and the cross-arm that is within the distances that may be bridged by birds alighting or perching upon the cross-arm. This is not of major concern in respect of wooden cross-arms. Even when wet, the wooden cross-arm has enough resistance to limit fault currents
- 25 through the bird to the grounded metal pole to a tolerable level, certainly well below that which would trigger line fuses or other system protection.

Summary of the invention.

- 30 An object of the present invention is to provide an alternative to timber cross-arms in low to medium voltage distribution and transmission systems.

According to a first aspect, the invention consists in an item of pole-top hardware for use in low to medium voltage electricity distribution and transmission systems characterised in that the item is metallic and is coated with an insulatory coating.

5 According to a second aspect, in instances wherein the item is a cross-arm and is to be mounted on a metallic pole, the invention further provides similarly coated clamping means for affixing the cross-arm to the pole, which clamping means avoid the need for a metallic fastener to contact both the cross-arm and the pole.

10 According to a third aspect, in instances wherein a cross-arm according to the first aspect of the invention is clamped to a metallic pole by clamping means according to its second aspect, the invention further provides for an insulatory medium, for example portion of a pliable insulatory sheet or tape, to be sandwiched between the pole and the cross-arm.

15

According to a fourth aspect the invention consists in a method of mounting a cross-arm according to its first aspect on a metallic pole comprising the steps of clamping the cross-arm to the pole by clamping means according to its second aspect.

20 **Brief Description of the Drawings.**

By way of example an embodiment of the invention is described hereinafter with reference to the accompanying drawings.

25 Figure 1 is an exploded perspective view of an assembly of a top portion of a pole and associated pole-top hardware, including a cross-arm, in accordance with the invention.

Figure 2 is a front elevation of the assembly of figure 1 drawn to a smaller scale.

30

Figure 3 is a plan view of the assembly of figure 1 drawn to a smaller scale.

B st Mode of putting the Invention into effect.

5 The illustrated assembly comprises a tubular steel utility pole 4, a hollow rectangular section steel cross-arm 5, a saddle 6, an insulatory tape wrapper 7, a pole cap 8 and bolts 9 able to extend through the side lugs of the saddle 6 and the cross-arm 5 to accept nuts 10 whereby the cross-arm 5 may be clamped to the pole 4.

10 The cross-arm 5, saddle 6 and cap 8 are made of sheet steel, preferably zinc galvanised or similarly coated with a corrosion resistant alloy, for example an aluminium-zinc alloy, and, in accordance with the invention, overcoated with a weather resistant, electrically insulatory coating.

15 The insulatory coating may be of a polymeric material, for example nylon. It is preferably applied by an electrolytic powder coating process, using a powder of the polymeric material.

20 The saddle 6 is made of relatively thick steel sheet compared to that of the pole 4 and is shaped and sized so that when the nuts 10 are tightened, the pole cross-section under the saddle is elastically strained to adopt a D shape, as indicated at 11. This helps to prevent the nuts from loosening in use and also prevents the cross-arm from rotating about the vertical axis of the pole or about a horizontal axis intersecting that vertical axis and passing through the cross-arm.

25

The tape 7 may be passed around the pole, as shown, or may be wrapped about the cross-arm. The primary requirement is that part of the tape is sandwiched between the pole and cross-arm to insulate one from the other.

30 In an alternative configuration the saddle 6 may be arranged vertically instead of horizontally as shown. It would then be positioned on the same side of the pole as

the cross-arm, and would of course be re-shaped so as to embrace the cross-arm instead of the pole. In that instance, bolts corresponding to bolts 9 would extend through the pole rather than through the cross-arm. In either circumstance it will be apparent that there would be no electrical connection between the pole and the cross-arm.

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. All such variations and modifications are to be considered within the scope of the present invention.

In the preceding summary of the invention, except where the context requires otherwise due to express language or necessary implication, the word "comprising" is used in the sense of "including", that is the features specified may be associated with further features in various embodiments of the invention.

Dated this 8th day of July 2002

BHP STEEL LIMITED

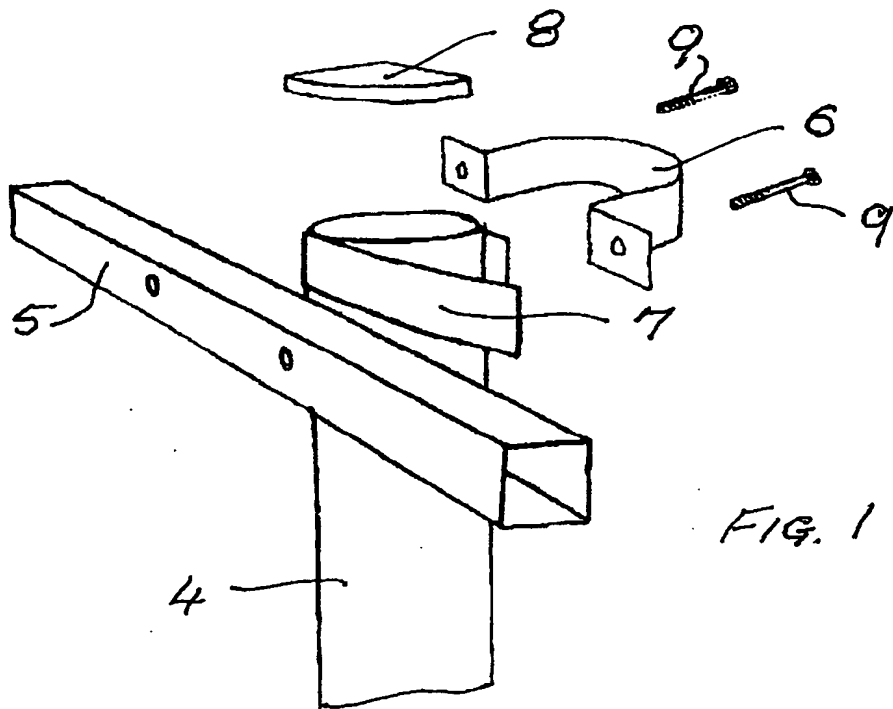


FIG. 1

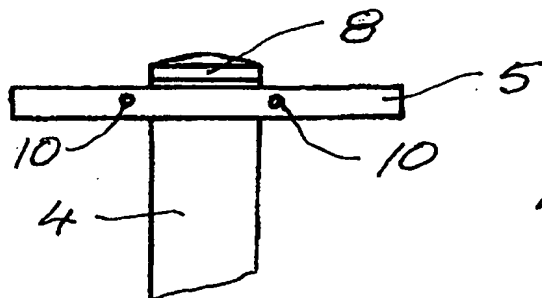


FIG. 2

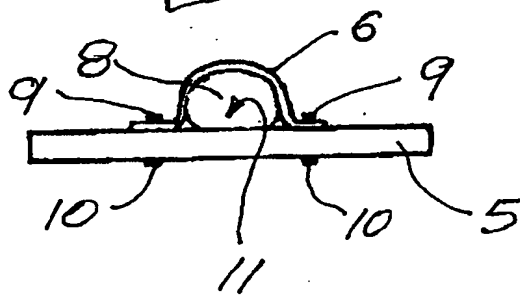


FIG. 3